

# NeverFreeze® De-icing Cable for Roofs and Gutters

## PRODUCT DESCRIPTION

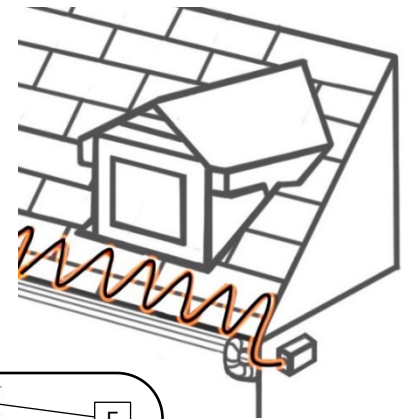
NeverFreeze® self-regulating heat cable is specially designed for roof, gutter and downspout deicing to prevent ice dams from forming on your roof and causing expensive structural water damage. Unlike constant Wattage cables that produce the same amount of heat regardless of the outside temperature, NeverFreeze® self-regulating cables increase Wattage as needed to melt ice and snow. NeverFreeze® energy-saving heat cables also reduce wattage when ambient temperatures increase to safely prevent overheating.

## FEATURES AND BENEFITS

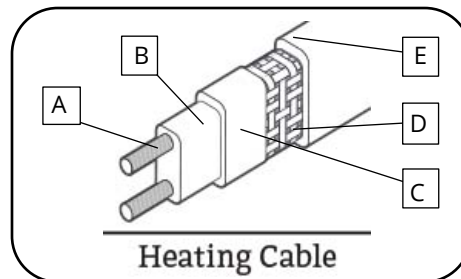
- Provides 8 Watts per foot of heating power at 32°F for snow and ice melting.
- Custom lengths in 1-foot increments to custom fit your project.
- Can be installed with peace of mind directly on roofing materials, gutters and downspouts.
- Four ways to buy.
- Kits with pre-determined lengths, assembled for plug-and-play installation convenience.
- Kits with custom lengths for best –fit to your installation, assembled with plug-and-play installation convenience.
- Custom lengths, un-assembled for field termination and maximum job-site customization.
- Complete spools for cutting-to-length and termination in the field for large jobs and maximum job-site customization.
- Listed in compliance with UL Standards for the U.S. and Canada.
- Factory-direct prices, custom sizes and professional support.

## APPLICATIONS

- Roofs
- Downspouts
- Gutters



## CONSTRUCTION



### **A. Dual Wires**

Two copper wires facilitate electrical current.

### **B. Polymer Conductor**

The conductive center adjusts electrical resistance by temperature. Additional heat is conducted when temperature is low and less heat is conducted when temperature is high.

### **C. Insulating Sheath**

The insulating sheath protects the cable's inner mechanisms from damaging chemicals and moisture. It is made of fire-resistant thermoplastic rubber.

### **D. Braided Copper Mesh**

The woven copper mesh creates a conductive route.

### **E. Outer Encasing**

The cable's outer encasing provides resistance to water and outside elements, ensuring the longevity of your system.

## APPROVALS



### BREAKER SIZING AT MINIMUM START-UP AMBIENT TEMPERATURE

Maximum Allowable Circuit Lengths per Breaker Rating for 5W/Ft. Heat Cable			
	120V		
	15A	20A	30A
Start up at 0°F	90'	120'	175'
Start up at -20°F	75'	100'	150'
	240V		
	15A	20A	30A
Start up at 0°F	135'	185'	275'
Start up at -20°F	120'	160'	250'

### NEVERFREEZE HEATING CABLE IS AVAILABLE IN 120 AND 240 VOLTS IN THESE SIZES:

\*Cable varies from 2 feet to 500 feet long (in 120 and 240 volts).

Find your cable's SKU according to voltage and length.

**Formula: "NFC"-Voltage-Length in feet**

#### Example

Cable Length: 50 ft.  
 Cable Voltage: 120 Volts  
 SKU: NFC-120-50

Volts	Model	Length
120	NFC-120-2 - NFC-120-500	2' - 500'
240	NFC-240-2 - NFC-240-500	2' - 500'

### WARRANTY & MAINTENANCE

When installed according to the installation manual and proper testing has been performed throughout, the system requires no maintenance for the duration of its warranted life.

The ThermoSoft® NeverFreeze® cable is warranted for 3 years against manufacturer's defects. See [www.ThermoSoft.com](http://www.ThermoSoft.com) for full warranty details.

### TECHNICAL SUPPORT

ThermoSoft® is available at (800)308-8057.

For quotes, layouts and specific technical information, contact us at:

ThermoSoft International Corporation  
 701 Corporate Woods Parkway, Vernon Hills, IL 60061  
[Support@ThermoSoft.com](mailto:Support@ThermoSoft.com)  
[www.ThermoSoft.com](http://www.ThermoSoft.com)

### SEE ALSO

- NeverFreeze® Snow Melting Cable
- NeverFreeze® Snow Melting Mats



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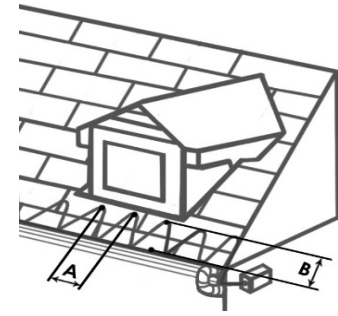
### HEATING CABLE SELECTION GUIDE

1. **Obtain and Record Application Data**
2. **Determine Proper Spacing**
3. **Complete Calculations**

Using the step tables below, determine the correct cable required.

4. **Calculate Heating Cable Length**
5. **Determine Circuits/Circuit Protection**

Circuit protection depends on the breaker size being used and the start-up temperature. The Canadian Electrical Code, Part I in Canada and the National Electric Code (NEC 1999) in the USA require the use of ground fault protection breakers for heating cable. The following chart shows the maximum circuit length for a given breaker rating. To determine the number of circuits required for each pipe, divide the total cable (circuit) length found in Step 3 by the maximum circuit length found in the chart. Round up to the next higher number.



**Table 1: Required Cable**

Roof Overhang	A	B	Spacing Factor
	Heating Width	Heating Height	
12"	24"	18"	2
24"	24"	30"	3
36"	24"	42"	4

\*Regardless of overhang, these are standard measurements.

#### Step 1: Record Measurements

A	Roof Overhang:	
B	Roof Length:	
C	Gutter Length:	
D	Downspout Length:	
E	Number of Downspouts:	
F	Distance Around Dormer:	
G	Number of Dormers:	
H	Number of Valleys:	
I	Breaker Rating:	

#### Step 2: Determine Spacing Factor

J	Determine Your Roof's Spacing Factor Found in Table 1	1
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#### Step 3: Complete Calculations

K	Multiply Roof's Spacing Factor (J) by Roof Length (B)	
L	Multiply Number of Dormers (G) by Distance Around Each Dormer (F)	
M	Multiply Number of Valleys (H) by 6 ft (1.8 m)	
N	Multiply Number of Downspouts (E) by Downspout Length (D) by 2	
G	Number of Dormers:	
H	Number of Valleys:	
I	Breaker Rating:	

#### Step 4: Find Total Cable Length Needed

O	Add Figure from C (Gutter Length), K (Roof Calculation), and N (Downspout Calculation)	
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#### Step 5: Circuit Calculations

P	Determine the Maximum Heater Length for Your Breaker Rating Found in Table 3	
Q	Divide Total Cable Length (O) by Maximum Heater Length Above (P)	



### IMPORTANT NOTES ON CABLE SELECTION

- We assume a minimum ambient temperature of 0°F and a thermal insulation of thick fiberglass wrap or equivalent. For protection to -20°F minimum ambient use 1" thick fiberglass wrap or equivalent.
- Add 1 foot of heating cable for every valve or spigot in the pipeline - make sure to apply this extra cable at each valve/ spigot when installing.
- If your selected cable length is longer than your pipe length, spiral the cable evenly along the length of pipe.
- ThermoSoft® NeverFreeze® has 5W ft output at 50°F, 6W ft output at 40°F and 10W ft output at 32°F.
- For 2" pipes and each 2" in diameter, double the output.
- For plastic pipes, consider 25% more heat required.
- Definition of self-regulating: Self-regulating heating cables will reduce your power output and energy consumption to the lowest possible point as the ambient conditions get warmer. Systems using self-regulating heating elements may not completely turn off without the use of an outside control.
- For more information, call (800)308-8057 or visit [www.ThermoSoft.com](http://www.ThermoSoft.com).

### ACCESSORIES

ThermoSoft® has a complete line of accessories specifically designed for use with NeverFreeze® cable. Use only ThermoSoft® NeverFreeze® accessories to ensure the performance of the system.

Code	Description
NF-GPPCK	120V Plug-in, GFCI power connection kit
NF-RC50	Roof Clips (50 pack)
NF-RC25	Roof Clips (25 pack)
NF-PCK	NeverFreeze® Power Connection Kit
NF-RC10	Roof Clips (10 pack)
NF-HB	Hanger Bracket
NF-ESK	End Seal Kit

